THE HYGIENE OF RURAL SCHOOLS.

By TALIAFERRO CLARK, Surgeon, United States Public Health Service.

In connection with recent field investigations opportunity was presented to make observations of the sanitary condition of a large number of rural schools, over an extended area.

The main object of these investigations, however, was to determine the prevalence of certain diseases, especially trachoma. Owing to the necessity of rapid inspections, in order to complete the work within a reasonable time, detailed examination of the schools visited was not undertaken. In all, 199 schools, 138 rural and 61 urban, were thus inspected by the writer and a total of 859 schools in 9 States by all the service officers, engaged in this work. It is very evident as revealed by these inspections, that in the territory covered there is a general lack of sanitary supervision in the construction and maintenance of rural school buildings and of medical supervision of the pupils.

The prevention and correction of physical and mental disabilities that may embarrass a child in taking advantage of the education offered by the State is a prime duty of the State toward the child. It is this phase of the educational problem that lends so great importance to school hygiene in general and to its application to rural communities in particular. According to the 1910 census report there were 10,529,871 pupils in attendance in rural schools and 7,480,000 in the urban. Of these there were 793,710 more pupils from 6 to 9 years of age, and 1,376,052 more from 10 to 14 years of age in rural school attendance than in urban. It is to be regretted that there is such a large proportion of children of impressionable age attending school without the advantages of sanitary and medical supervision. This is all the more regrettable because of the presence in rural communities of numerous children who are suffering from curable defects by reason of the want of skilled medical advice.

Defects Revealed by Medical Inspection of Schools.

Mr. J. A. Pease, in a speech in committee of supply, House of Commons, thus summarizes the physical defects found among the school children of England:

Impaired eyesight, 10 per cent; impaired hearing, 5 per cent; ear disease, 3 per cent; adenoids, 5 per cent; serious decay of teeth, 50 per cent; tuberculosis, 2 per cent; heart disease, 2 per cent; malnutrition, 10 per cent; mentally defective, 1 per cent; backward children, 12.5 per cent; abnormally gifted children, 3 per cent.

These figures differ somewhat from those reported in various schools of the United States, but the relative proportions are about the same. The important point needing emphasis is that many of these defects, developmental and acquired, may be corrected in the

early years of life, and to neglect them results in serious impairment of the health, growth, and efficiency of the child.

Organized health work in schools until the present time has been largely confined to cities. Our investigations demonstrate the necessity of the extension of this work to country districts, where reside so large a number of people without the advantage of instruction relative to sanitary measures essential to health. In many districts the element of expense is a serious consideration, and it will be necessary to demonstrate the money value of school hygiene in the resulting increased efficiency of the child and improved community sanitation. The general adoption of hygienic measures, however, will be gradual, and considerable time must elapse before any noticeable effect on community health will be observed except in restricted localities. The need for some properly constituted authority to make intensive studies of rural school conditions in different sections of the country for educational value to the country at large is apparent.

Our knowledge of the principles of school hygiene is far in advance of the actual practice. State boards of health and education may adopt rules and regulations in relation to the construction of school buildings, but their acceptance by communities poorly provided with funds, indifferently supplied with medical services and entirely without trained sanitary advisers, is another question. It is necessary to educate rural communities in these matters. There is need for studies of rural schools from the standpoint of the child engaged in an occupation which in most States is a compulsory one.

Existing Needs.

One of the gravest situations observed in connection with schools of remote districts was the small attendance, though the child population of these districts was relatively large. Due attention to the construction, equipment, and maintenance of school buildings with respect to location, playground facilities, a proper regard for heating, lighting, ventilating, and seating equipment and sanitary toilet conveniences will result in lessening juvenile delinquency and improving the health of the community.

The conviction arises from the investigation of trachoma in a number of heavily infected remote districts that this eye affection can be controlled therein only by education, yet these are the districts where the observance of sanitation in connection with school life is least evident, and the necessity therefor the most apparent.

The economic loss to communities suffering from this communicable disease of the eyes is very great through diminished earning capacity of those attacked. The value of improved sanitation and increased educational facilities to these infected communities can not

be measured in dollars and cents, but the necessity therefor was revealed by the investigations just completed.

The educational facilities provided by a community for its children is a reliable index of the culture and prosperity of that community. The sanitary provisions for schools is likewise a fairly accurate measure of community knowledge of sanitary matters. Our investigations have revealed a widespread need for instruction in rural sanitation, which can be given in large measure through rural schools. Certainly no better means can be devised for determining the endemicity of certain communicable diseases, for tracing and controlling foci of tuberculosis, for the control of the so-called contagious diseases of childhood, and for the eradication of smallpox in rural districts than a general and properly conducted medical supervision of the schools. For example, in the course of these investigations the writer found over 10 per cent of the pupils suffering from trachoma in 21 rural schools, and over 20 per cent in 11 schools. In 4 schools the rate of trachoma infection was 35.29, 43.20, 43.75, and 46.15 per cent, respectively.

The adult population represented by these school children is fixed in the habits and mode of life so largely responsible for heavy community infection. The neglect of sanitary precautions will favor the continued spread of this disease, and the only hope for complete eradication lies in the education of the rising generations. It is along such lines that the greatest benefit is to be derived from the sanitary supervision and medical inspection of the schools of rural districts.

Furthermore, in the course of these field investigations, the writer failed to find a single sanitary privy installed for the use of rural-school children. In numerous instances no privy accommodations whatsoever were provided, and soil pollution in the neighborhood of the schoolhouse was evident. In one county, 11 cases of typhoid fever with 2 deaths were traced to the infected wells of two schools during the year preceding these investigations.

It is unfortunate that the school year in rural districts seldom exceeds six months. In many communities it is even less. Any loss of time in school attendance to a child of such limited opportunity for education is a serious matter, and is the more regrettable because absences due to sickness are largely preventable. For example, Mr. A. Hughart, superintendent of the Valparaiso, Ind., public schools, had a record kept of the total time lost by all pupils on account of sickness and tardiness during the year 1910–11.

The total enrollment of these schools was 1,000 pupils. The total loss of time of pupils from school during the year amounted in the aggregate to 37 school years. Seventy-six per cent of this loss of time was due to sickness, 60 per cent of it being occasioned by preventable diseases. The time lost on account of scarlet fever

FIG. 1.—SCHOOL WITH INSUFFICENT WINDOWS.

The windows are not large enough to provide sufficient light. They should be higher and the window panes larger.

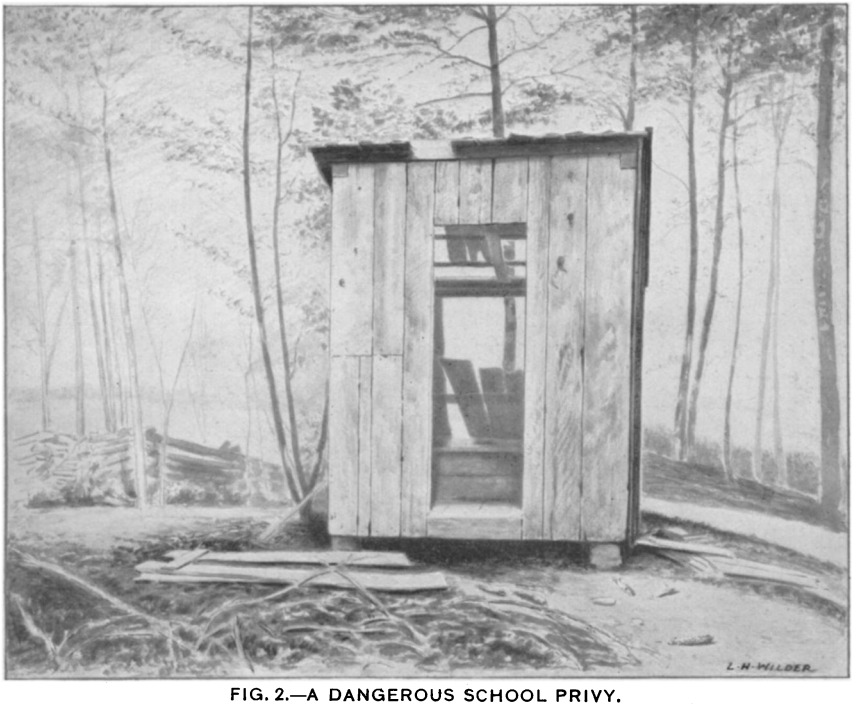

FIG. 2.—A DANGEROUS SCHOOL PRIVY.

Cover to seat of privy and door to entrance are lacking, thus allowing access to flies and animals. Excreta are deposited upon the ground, thus bringing about soil pollution. Thirty-eight out of forty children in this school were found to be infected with hookworm. The percentage of hookworm infection in the county in which this school is located was 82.6.

was 8½ years; from chicken pox 3 years 4 months and 13 days; toothache, 5 months. The loss to the community, therefore, on account of absences from school amounted to $1,850, that is, 37 years at $50 per year, the per capita cost. The loss due to preventable diseases was $1,100. The neglect of sanitary supervision of schools, therefore, results not only in injury to the child through inability to take advantage of the opportunity for intellectual training, but also in actual calculable monetary loss to a community, in many instances, poorly supplied with funds for educational purposes.

The sanitary needs revealed by these surveys are many. In general, they are due to lack of skilled advice, and are those of location, construction, and equipment as applied to school buildings. The accompanying cuts are typical of existing conditions in many places, as will be recognized by those familiar with rural schools.

With respect to the child, rural education is a practical illustration of the survival of the fittest. There is no uniform medical supervision of rural-school children, and in many sections only an indifferent adaptation of intellectual training to the physical and mental necessities of the child. That men come from the country and in the course of time, in spite of the disadvantages of early training, take prominent places in medicine, law, theology, and finance in urban communities is further evidence of the desirability of extending to such people all the benefits of education and hygiene.

These rural communities are also denied the benefits to be derived indirectly from the application of the principles of hygiene to schools and school life. With the extension of the movement to consolidate several schools into one the school year will be lengthened, better schools will be provided, medical inspections become possible, the district school nurse will evolve, sick children will be visited, and the principles of correct sanitary living will be taught in the homes. The benefits to be derived from such measures are obvious, but not fully appreciated even in communities where they are in force. It can not be expected, therefore, that these conditions are to be brought about at once. There is necessity for much painstaking effort and actual demonstration before these measures, no matter how urgently needed, can obtain in many sections of our country.

Lastly, the study of the sanitary condition of the schools and the medical supervision of the pupils in rural districts will be of the greatest value to the State at large and the State board of health in particular, because such studies bring to light most clearly the public health needs of such communities.

Furthermore, where full-time health officers are not available because of lack of funds, the rational combination of such duties with that of the medical supervision of schools would make the employment of such an officer practicable and profitable.